

SEQUENCE LISTING

<110> Boehringer Ingelheim Pharma KG

<120> Methods for identifying substances for treating
inflammatory conditions

<130> 1/1178

<140>

<141>

<150> US 60/257,878

<151> 2000-12-22

<160> 20

<170> PatentIn Ver. 2.1

<210> 1

<211> 2167

<212> DNA

<213> Homo sapiens

<400> 1

```
ctgcaggaac caatacccat aggcattttg tataaatggg ccatggggcc tcccagctgg 60
aggctggctg gtgccacgag ggtccacag gcatgggtgt ccttcctata tcacatggcc 120
ttcactgaga ctggtatatg gattgcacct atcagagacc aaggacagga cctccctgga 180
aatctctgag gacctggcct gtgatccagt tgctgccttg tcctcttctt gctatgtcat 240
ggcttatctt ctttcaccca ttcattcatt cattcattca ttcagcagta ttagtcaatg 300
tctcttgata tgccctggcag ctgctagatg gtcccgaggt ttaccattag tggaaaagac 360
atttaagaaa ttcaccaagg gctctatgag aggccatata cgggtggacct gactaggggtg 420
tggtctccct gaggagctga agttgcccag agggccagag aaggggagct gagcacgttt 480
gaaccactga acctgctctg gacctgcct ccttccttcg gtgcctccca gcatcctatc 540
ctcttttaaag agcagggggt cagggaagtt ccctggatgg tgattcgcag gggcagctcc 600
cctctcacct gccgcatgac taccgcgcc catctcaaac acacaagctc acgcatgcgg 660
gactggagcc cttgaggaca tgtggcccaa agacaggagg tacagggggt cagtgcgtgc 720
agtggaatga actgggcttc atctctggaa gggtgaaggg ccattcttcg ggttcaccgc 780
```

```

cgcatcccca cccccggcac agcgccctcct ggcgactaac atcggtgact tagtgaaagg 840
actaagaaaag acccgaggcg aggccggaac aggccgattt ctagccgcca agtggagAAC 900
aggttgggagc ggtgcgccgg gcttagcggc ggttgctgga ggaacgggCG gagtcgcccc 960
gggtcctgcc ctgCGgggggt cgagccgagg caggcggtga cttccccact cggggcgagg 1020
ccgcagcctc gCGggggcg ggcctggcgc cggcggtggc gtcacaaaag gCGggaccac 1080
agtgggtgtcc gagaagtcag gcacgtagct cagcggcggc cgcggcgCGt gcgtctgtgc 1140
ctctgCGcg gTctcctggt ccttctgccA tcatgCGgat gttcatcgta aacaccaacg 1200
tgccccgCGc ctccgtgccg gacgggttcc tctccgagct caccagcag ctggcgCagg 1260
ccaccgGcaa gccccccag gtttgccggg aggggacagg aagagggggg tgcCaccCG 1320
acgaggggtt ccgcgctggg agctggggag gCGactcctg aacggagctg gggggcgggg 1380
cggggggagg acggtggctc gggcccgaag tggacgttcg gggcccgacg aggtcgctgg 1440
ggcgggctga ccgcgcctt tctcgcagt acatcgCGgt gcacgtggtc cgggaccagc 1500
tcatggcctt cggcggtcc agcgagccgt gCGcgctctg cagcctgcac agcatcgGca 1560
agatcgGcg cgcgcagaac cgctcctaca gcaagctgct gtgCGgcctg ctggccgagc 1620
gcctgCGcat cagcccggaC aggtacCGg agtcgCGgag gggcggggga gggcgGcg 1680
cgcgCGcca gggccgggac tgagccaccc gctgagtcCG gcctcctccc cccgcagggT 1740
ctacatcaac tattacgaca tgaacCGgc caatgtgggc tggaacaact ccaccttcgc 1800
ctaagagccg cagggaacca cgctgtctgc gctggctcca cccgggaacc cgcgcacgc 1860
tgtgttctag gcccgcCac cccaaccttc tggTggggag aaataaacgG tttagagact 1920
aggagtgcct cgggggttct tggcttgCGg gaggaattgg tgcagagccg ggacattggg 1980
gagcgaggtc gggaaacggt gttggggcg ggggtcaggg cggggttgcT ctctcgaac 2040
ctgctgttcg ggagcccttt tgtccagcct gtccctccta cgctcctaac agaggagccc 2100
cagtgtcttt ccattctatg gcgtacgaag ggatgaggag aagttggcac tctgCcttg 2160
gctgcag 2167

```

<210> 2

<211> 115

<212> PRT

<213> Homo sapiens

<400> 2

Met Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro

1

5

10

15

Asp Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly

20

25

30

Lys Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met
 35 40 45

Ala Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser
 50 55 60

Ile Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu
 65 70 75 80

Cys Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr
 85 90 95

Ile Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser
 100 105 110

Thr Phe Ala
 115

<210> 3

<211> 699

<212> DNA

<213> Homo sapiens

<400> 3

catccggtgt ggtcgacggg tcctccaaga gtttggggcg cggaccggag taccttgcg 60
 gcagttatgt cggcgtcggt agtgtctgtc atttcgcggt tcttagaaga gtacttgagc 120
 tccactccgc agcgtctgaa gttgctggac gcgtacctgc tgtatatact gctgaccggg 180
 gcgctgcagt tcggttactg tctcctcgtg gggaccttcc ctttcaactc ttttctctcg 240
 ggcttcatct cttgtgtggg gagtttcatc ctagcggttt gcctgagaat acagatcaac 300
 ccacagaaca aagcggattt ccaaggcatc tccccagagc gagcctttgc tgattttctc 360
 ttgcccagca ccatcctgca ccttgttgtc atgaactttg ttggctgaat cattctcatt 420
 tacttaattg aggagtagga gactaaaaga atgttcactc tttgaatttc ctggataaga 480
 gttctggaga tggcagctta ttggacacat ggattttctt cagatttgac acttactgct 540
 agctctgctt tttatgacag gagaaaagcc cagagttcac tgtgtgtcag aacaactttc 600
 taacaaacat ttattaatcc agcctctgcc tttcattaaa tgtaaccttt tgctttccaa 660
 attaaagaac tccatgccac tcctcaaaaa aaaaaaaaaa 699

<210> 4
 <211> 113
 <212> PRT
 <213> Homo sapiens

<400> 4
 Met Ser Ala Ser Val Leu Ser Val Ile Ser Arg Phe Leu Glu Glu Tyr
 1 5 10 15
 Leu Ser Ser Thr Pro Gln Arg Leu Lys Leu Leu Asp Ala Tyr Leu Leu
 20 25 30
 Tyr Ile Leu Leu Thr Gly Ala Leu Gln Phe Gly Tyr Cys Leu Leu Val
 35 40 45
 Gly Thr Phe Pro Phe Asn Ser Phe Leu Ser Gly Phe Ile Ser Cys Val
 50 55 60
 Gly Ser Phe Ile Leu Ala Val Cys Leu Arg Ile Gln Ile Asn Pro Gln
 65 70 75 80
 Asn Lys Ala Asp Phe Gln Gly Ile Ser Pro Glu Arg Ala Phe Ala Asp
 85 90 95
 Phe Leu Phe Ala Ser Thr Ile Leu His Leu Val Val Met Asn Phe Val
 100 105 110
 Gly

<210> 5
 <211> 1077
 <212> DNA
 <213> Homo sapiens

<400> 5

```

cttatccctg cgtagaaaacg cctgccaatg ctttctcatt tggacccaga ctccagatcg 60
ggagcagtct tatagctgga tcagctacca agagaagttg taaaccaaga agagaaaagc 120
atttcaattt gggacattta tttgcacctg gaaatgggga atgggctgtc agaccagact 180
tctatcctgt ccaacctgcc ttcatttcag tctttccaca ttgttattct gggtttggac 240
tgtgctggaa agacaacagt cttatacagg ctgcagttca atgaatttgt aaataaccgta 300
cctaccaaag gatttaacac tgagaaaatt aaggtaacct tgggaaattc taaaacagtc 360
acttttcact tctgggatgt aggtggtcag gagaaattaa ggccactgtg gaagtcatat 420
accagatgca cagatggcat tgtatttggt gtggactctg ttgatgtcga aaggatggaa 480
gaagccaaaa ctgaacttca caaaataact aggatatcag aaaatcaggg agtccctgta 540
cttatagttg ctaacaaaca agatttgagg aactcattgt cactttcaga aattgagaaa 600
ttgttagcaa tgggtgaact gagctcatca actccttggc atttgcagcc tacctgtgca 660
atcataggag atggcctaaa ggaaggactt gagaaactac atgatatgat cattaanaaga 720
agaaaaatgt tgcggcaaca gaaaaagaaa agatgaatat caatacctat tatactctgtg 780
tggagtaggt tttctctggt ctgattttga caaatagaag agtgtctaca ccgtcctttg 840
cctgtctgcc ctctgggatg ctattaaagc tttgttttgt tgaacaatca gatgcccaac 900
tctgttgcc tgtggaagat gagtaaatgc agtgcttctt aaagtggctt cttctcccta 960
ccccacaaat cttttggtac taccatttgg ggaagccaag caaggatagt aaattgacca 1020
gaacacagtt gtgggaattt ggtctgaagt tagtgaaata aaactttaaa gagtgtc 1077

```

<210> 6

<211> 200

<212> PRT

<213> Homo sapiens

<400> 6

```

Met Gly Asn Gly Leu Ser Asp Gln Thr Ser Ile Leu Ser Asn Leu Pro
  1                   5                   10                   15

```

```

Ser Phe Gln Ser Phe His Ile Val Ile Leu Gly Leu Asp Cys Ala Gly
      20                   25                   30

```

```

Lys Thr Thr Val Leu Tyr Arg Leu Gln Phe Asn Glu Phe Val Asn Thr
      35                   40                   45

```

```

Val Pro Thr Lys Gly Phe Asn Thr Glu Lys Ile Lys Val Thr Leu Gly
      50                   55                   60

```

Asn Ser Lys Thr Val Thr Phe His Phe Trp Asp Val Gly Gly Gln Glu
65 70 75 80

Lys Leu Arg Pro Leu Trp Lys Ser Tyr Thr Arg Cys Thr Asp Gly Ile
85 90 95

Val Phe Val Val Asp Ser Val Asp Val Glu Arg Met Glu Glu Ala Lys
100 105 110

Thr Glu Leu His Lys Ile Thr Arg Ile Ser Glu Asn Gln Gly Val Pro
115 120 125

Val Leu Ile Val Ala Asn Lys Gln Asp Leu Arg Asn Ser Leu Ser Leu
130 135 140

Ser Glu Ile Glu Lys Leu Leu Ala Met Gly Glu Leu Ser Ser Ser Thr
145 150 155 160

Pro Trp His Leu Gln Pro Thr Cys Ala Ile Ile Gly Asp Gly Leu Lys
165 170 175

Glu Gly Leu Glu Lys Leu His Asp Met Ile Ile Lys Arg Arg Lys Met
180 185 190

Leu Arg Gln Gln Lys Lys Lys Arg
195 200

<210> 7

<211> 2379

<212> DNA

<213> Homo sapiens

<400> 7

ggaattccgg tcggcctctc gcccttcagc tacctgtgcg tccctccgtc ccgtcccgtc 60
ccgggggtcac cccggagcct gtccgctatg cggctcctgc ctctagcccc aggtcggctc 120
cggcgggggca gcccccgcca cctgcctcc tgcagcccag cgctgctact gctggtgctg 180

ggcggtgcc tgggggtctt cgggggtggct gcgggaaccc ggaggcccaa cgtgggtgctg 240
 ctctcacgg acgaccagga cgaagtgtct ggcgcatga caccactaaa gaaaaccaa 300
 gctctcatcg gagagatggg gatgactttt tccagtgtt atgtgccaaag tgctctctgc 360
 tgccccagca gagccagtat cctgacagga aagtaccac ataatcatca cgttggtgaac 420
 aacactctgg aggggaactg cagtagtaag tcctggcaga agatccaaga accaaatact 480
 tccccagcaa ttctcagatc aatgtgtggt tatcagacct tttttgcagg gaaatattta 540
 aatgagtacg gagccccaga tgcagggtga ctagaacacg ttctctctggg ttggagttac 600
 tgggtatgcct tggaaaagaa ttctaagtat tataattaca ccctgtctat caatgggaag 660
 gcacggaagc atgggtgaaa ctatagtgtg gactacctga cagatgtttt ggctaattgtc 720
 tccttggaact ttctggacta caagtccaac tttgagccct tcttcatgat gatcgccact 780
 ccagcgctc attcgcttg gacagctgca cctcagtacc agaaggcttt ccagaatgtc 840
 tttgcaccaa gaaacaagaa cttcaacatc catggaacga acaagcactg gttaattagg 900
 caagccaaga ctccaatgac taattcttca atacagtttt tagataatgc atttaggaaa 960
 aggtggcaaa ctctctctc agttgatgac cttgtggaga aactgggtcaa gaggctggag 1020
 ttcactggg agctcaaca cacttacatc ttctatacct cagacaatgg ctatcacaca 1080
 ggacagtttt ccttgccaat agacaagaga cagctgtatg agtttgatat caaagttcca 1140
 ctggttggtc gaggacctg gatcaaacca aatcagacaa gcaagatgct gggtgccaac 1200
 attgacttg gtctactat tttggacatt gctggctacg acctaaataa gacacagatg 1260
 gatgggatgt ccttattgcc cattttgaga ggtgccagta acttgacctg gcgatcagat 1320
 gtctgggtg aataccaagg agaaggcct aacgtcactg acccaacatg cccttccctg 1380
 agtctggcg tatctcaatg cttcccagac tgtgtatgtg aagatgttta taacaatacc 1440
 tatgcctgtg tgaggacaat gtcagcattg tggaaattgc agtattgcga gtttgatgac 1500
 caggaggtgt ttgtagaagt ctataatctg actgcagacc cagaccagat cactaacatt 1560
 gctaaaacca tagaccaga gcttttagga aagatgaact atcggttaat gatgttacag 1620
 tcctgttctg ggccaacctg tcgcactcca ggggtttttg accccggata caggtttgac 1680
 ccccgctc tgttcagcaa tcgcggcagt gtcaggactc gaagattttc caaacatctt 1740
 ctgtagcgac ctacacagc ctctgcagat ggatccctgc acgctcttt ctgatgaagt 1800
 gattgtagta ggtgtctgta gctagtcttc aagaccacac ctggaagagt ttctgggctg 1860
 gctttaagtc ctgtttgaaa aagcaacca gtcagctgac ttctctgtgc aatgtgttaa 1920
 actgtgaact ctgcccattg gtcaggagt gctgtctctg gtctcttctt ttagctgaca 1980
 aggacactcc tgaggctctt gttctcactg tatttttttt atcctggggc cacagttctt 2040
 gattattcct cttgtgggtta aagactgaat ttgtaaacc attcagataa atggcagtac 2100
 tttaggacac acacaaacac acagatacac cttttgatat gtaagcttga cctaaagtca 2160
 aaggacctgt gtagcatttc agattgagca cttcactatc aaaaatacta acatcacatg 2220
 gcttgaagag taaccatcag agctgaatca tccaagtaag aacaagtacc attgttgatt 2280
 gataagtaga gatacatctt ttatgatgtt catcacagtg tggtaagggt gcaaattcaa 2340
 aacatgtcac ccaagctctg ttcattgttt tgtgaattc 2379

<210> 8

<211> 552

<212> PRT

<213> Homo sapiens

<400> 8

Met Arg Leu Leu Pro Leu Ala Pro Gly Arg Leu Arg Arg Gly Ser Pro
1 5 10 15

Arg His Leu Pro Ser Cys Ser Pro Ala Leu Leu Leu Leu Val Leu Gly
20 25 30

Gly Cys Leu Gly Val Phe Gly Val Ala Ala Gly Thr Arg Arg Pro Asn
35 40 45

Val Val Leu Leu Leu Thr Asp Asp Gln Asp Glu Val Leu Gly Gly Met
50 55 60

Thr Pro Leu Lys Lys Thr Lys Ala Leu Ile Gly Glu Met Gly Met Thr
65 70 75 80

Phe Ser Ser Ala Tyr Val Pro Ser Ala Leu Cys Cys Pro Ser Arg Ala
85 90 95

Ser Ile Leu Thr Gly Lys Tyr Pro His Asn His His Val Val Asn Asn
100 105 110

Thr Leu Glu Gly Asn Cys Ser Ser Lys Ser Trp Gln Lys Ile Gln Glu
115 120 125

Pro Asn Thr Phe Pro Ala Ile Leu Arg Ser Met Cys Gly Tyr Gln Thr
130 135 140

Phe Phe Ala Gly Lys Tyr Leu Asn Glu Tyr Gly Ala Pro Asp Ala Gly
145 150 155 160

Gly	Leu	Glu	His	Val	Pro	Leu	Gly	Trp	Ser	Tyr	Trp	Tyr	Ala	Leu	Glu	165	170	175	
Lys	Asn	Ser	Lys	Tyr	Tyr	Asn	Tyr	Thr	Leu	Ser	Ile	Asn	Gly	Lys	Ala	180	185	190	
Arg	Lys	His	Gly	Glu	Asn	Tyr	Ser	Val	Asp	Tyr	Leu	Thr	Asp	Val	Leu	195	200	205	
Ala	Asn	Val	Ser	Leu	Asp	Phe	Leu	Asp	Tyr	Lys	Ser	Asn	Phe	Glu	Pro	210	215	220	
Phe	Phe	Met	Met	Ile	Ala	Thr	Pro	Ala	Pro	His	Ser	Pro	Trp	Thr	Ala	225	230	235	240
Ala	Pro	Gln	Tyr	Gln	Lys	Ala	Phe	Gln	Asn	Val	Phe	Ala	Pro	Arg	Asn	245	250	255	
Lys	Asn	Phe	Asn	Ile	His	Gly	Thr	Asn	Lys	His	Trp	Leu	Ile	Arg	Gln	260	265	270	
Ala	Lys	Thr	Pro	Met	Thr	Asn	Ser	Ser	Ile	Gln	Phe	Leu	Asp	Asn	Ala	275	280	285	
Phe	Arg	Lys	Arg	Trp	Gln	Thr	Leu	Leu	Ser	Val	Asp	Asp	Leu	Val	Glu	290	295	300	
Lys	Leu	Val	Lys	Arg	Leu	Glu	Phe	Thr	Gly	Glu	Leu	Asn	Asn	Thr	Tyr	305	310	315	320
Ile	Phe	Tyr	Thr	Ser	Asp	Asn	Gly	Tyr	His	Thr	Gly	Gln	Phe	Ser	Leu	325	330	335	
Pro	Ile	Asp	Lys	Arg	Gln	Leu	Tyr	Glu	Phe	Asp	Ile	Lys	Val	Pro	Leu	340	345	350	
Leu	Val	Arg	Gly	Pro	Gly	Ile	Lys	Pro	Asn	Gln	Thr	Ser	Lys	Met	Leu	355	360	365	

Val	Ala	Asn	Ile	Asp	Leu	Gly	Pro	Thr	Ile	Leu	Asp	Ile	Ala	Gly	Tyr	370	375	380	
Asp	Leu	Asn	Lys	Thr	Gln	Met	Asp	Gly	Met	Ser	Leu	Leu	Pro	Ile	Leu	385	390	395	400
Arg	Gly	Ala	Ser	Asn	Leu	Thr	Trp	Arg	Ser	Asp	Val	Leu	Val	Glu	Tyr	405	410	415	
Gln	Gly	Glu	Gly	Arg	Asn	Val	Thr	Asp	Pro	Thr	Cys	Pro	Ser	Leu	Ser	420	425	430	
Pro	Gly	Val	Ser	Gln	Cys	Phe	Pro	Asp	Cys	Val	Cys	Glu	Asp	Ala	Tyr	435	440	445	
Asn	Asn	Thr	Tyr	Ala	Cys	Val	Arg	Thr	Met	Ser	Ala	Leu	Trp	Asn	Leu	450	455	460	
Gln	Tyr	Cys	Glu	Phe	Asp	Asp	Gln	Glu	Val	Phe	Val	Glu	Val	Tyr	Asn	465	470	475	480
Leu	Thr	Ala	Asp	Pro	Asp	Gln	Ile	Thr	Asn	Ile	Ala	Lys	Thr	Ile	Asp	485	490	495	
Pro	Glu	Leu	Leu	Gly	Lys	Met	Asn	Tyr	Arg	Leu	Met	Met	Leu	Gln	Ser	500	505	510	
Cys	Ser	Gly	Pro	Thr	Cys	Arg	Thr	Pro	Gly	Val	Phe	Asp	Pro	Gly	Tyr	515	520	525	
Arg	Phe	Asp	Pro	Arg	Leu	Met	Phe	Ser	Asn	Arg	Gly	Ser	Val	Arg	Thr	530	535	540	
Arg	Arg	Phe	Ser	Lys	His	Leu	Leu	545	550										

<210> 9
 <211> 3257
 <212> DNA
 <213> Homo sapiens

<400> 9

```

aacaggcgtg acgccagttc taaacttgaa acaaaacaaa acttcaaagt acacccaaaat 60
agaacctcct taaagcataa atctcacgga gggctctcggc cgccagtgga aggagccacc 120
gcccccgccc cgaccatggc cgaggagctg gtcttagaga ggtgtgatct ggagctggag 180
accaatggcc gagaccacca cacggccgac ctgtgccggg agaagctggg ggtgcgacgg 240
ggccagccct tctggetgac cctgcacttt gagggccgca actaccaggc cagtgtagac 300
agtctcacct tcagtgtcgt gaccggccca gccctagcc aggaggccgg gaccaaggcc 360
cgttttccac taagagatgc tgtggaggag ggtgactgga cagccaccgt ggtggaccag 420
caagactgca ccctctcgct gcagctcacc accccggcca acgcccccat cggcctgtat 480
cgcctcagcc tggaggcctc cactggctac cagggatcca gctttgtgct gggccacttc 540
atthttgctct tcaacgcctg gtgcccagcg gatgctgtgt acctggactc ggaagaggag 600
cggcaggagt atgtectcac ccagcagggc tttatctacc agggctcggc caagtctatc 660
aagaacatac cttggaattt tgggcagttt caagatggga tcctagacat ctgcctgac 720
cttctagatg tcaaccccaa gttcctgaag aacgccggcc gtgactgctc ccggcgcagc 780
agccccgtct acgtgggccc ggtgggtagt ggcatggcca actgcaacga tgaccagggt 840
gtgctgctgg gacgtgggga caacaactac ggggacggcg tcagcccat gtcctggatc 900
ggcagcgtgg acatcctgcg gcgctggaag aaccacggct gccagcgcgt caagtatggc 960
cagtgtgggg tcttcgccgc cgtggcctgc acagtgtgga ggtgcctagg catccctacc 1020
cgcgtcgtga ccaactacaa ctcgcccat gaccagaaca gcaaccttct catcgagtac 1080
ttccgcaatg agtttgggga gatccagggt gacaagagcg agatgatctg gaacttccac 1140
tgctgggtgg agtcgtggat gaccaggccg gacctgcagc cggggtacga gggctggcag 1200
gccctggacc caacgccccca ggagaagagc gaaggaacgt actgctgtgg ccagttcca 1260
gttcgtgcca tcaaggaggg cgacctgagc accaagtacg atgcgcctt tgtctttgcg 1320
gaggtcaatg ccgacgtggg agactggatc cagcaggacg atgggtctgt gcacaaatcc 1380
atcaaccgtt ccctgatcgt tgggctgaag atcagcacta agagcgtggg ccgagacgag 1440
cgggaggata tcacccacac ctacaaatac ccagaggggt cctcagagga gagggaggcc 1500
ttcacaaggg cgaaccacct gaacaaactg gccgagaagg aggagacagg gatggccatg 1560
cggatccgtg tgggccagag catgaacatg ggcagtgact ttgacgtctt tgcccacatc 1620
accaacaaca ccgctgagga gtacgtctgc cgctcctgc tctgtgcccg caccgtcagc 1680
tacaatggga tcttggggcc cgagtgtggc accaagtacc tgctcaacct aaccctggag 1740
cctttctctg agaagagcgt tcctctttgc atcctctatg agaaataccg tgactgcctt 1800
acggagtcca acctcatcaa ggtgcgggcc ctctcgtgg agccagttat caacagctac 1860
ctgctggctg agagggacct ctacctggag aatccagaaa tcaagatccg gatccttggg 1920

```


Val Arg Arg Gly Gln Pro Phe Trp Leu Thr Leu His Phe Glu Gly Arg
 35 40 45
 Asn Tyr Gln Ala Ser Val Asp Ser Leu Thr Phe Ser Val Val Thr Gly
 50 55 60
 Pro Ala Pro Ser Gln Glu Ala Gly Thr Lys Ala Arg Phe Pro Leu Arg
 65 70 75 80
 Asp Ala Val Glu Glu Gly Asp Trp Thr Ala Thr Val Val Asp Gln Gln
 85 90 95
 Asp Cys Thr Leu Ser Leu Gln Leu Thr Thr Pro Ala Asn Ala Pro Ile
 100 105 110
 Gly Leu Tyr Arg Leu Ser Leu Glu Ala Ser Thr Gly Tyr Gln Gly Ser
 115 120 125
 Ser Phe Val Leu Gly His Phe Ile Leu Leu Phe Asn Ala Trp Cys Pro
 130 135 140
 Ala Asp Ala Val Tyr Leu Asp Ser Glu Glu Glu Arg Gln Glu Tyr Val
 145 150 155 160
 Leu Thr Gln Gln Gly Phe Ile Tyr Gln Gly Ser Ala Lys Phe Ile Lys
 165 170 175
 Asn Ile Pro Trp Asn Phe Gly Gln Phe Gln Asp Gly Ile Leu Asp Ile
 180 185 190
 Cys Leu Ile Leu Leu Asp Val Asn Pro Lys Phe Leu Lys Asn Ala Gly
 195 200 205
 Arg Asp Cys Ser Arg Arg Ser Ser Pro Val Tyr Val Gly Arg Val Gly
 210 215 220
 Ser Gly Met Val Asn Cys Asn Asp Asp Gln Gly Val Leu Leu Gly Arg
 225 230 235 240

Trp Asp Asn Asn Tyr Gly Asp Gly Val Ser Pro Met Ser Trp Ile Gly
 245 250 255
 Ser Val Asp Ile Leu Arg Arg Trp Lys Asn His Gly Cys Gln Arg Val
 260 265 270
 Lys Tyr Gly Gln Cys Trp Val Phe Ala Ala Val Ala Cys Thr Val Leu
 275 280 285
 Arg Cys Leu Gly Ile Pro Thr Arg Val Val Thr Asn Tyr Asn Ser Ala
 290 295 300
 His Asp Gln Asn Ser Asn Leu Leu Ile Glu Tyr Phe Arg Asn Glu Phe
 305 310 315 320
 Gly Glu Ile Gln Gly Asp Lys Ser Glu Met Ile Trp Asn Phe His Cys
 325 330 335
 Trp Val Glu Ser Trp Met Thr Arg Pro Asp Leu Gln Pro Gly Tyr Glu
 340 345 350
 Gly Trp Gln Ala Leu Asp Pro Thr Pro Gln Glu Lys Ser Glu Gly Thr
 355 360 365
 Tyr Cys Cys Gly Pro Val Pro Val Arg Ala Ile Lys Glu Gly Asp Leu
 370 375 380
 Ser Thr Lys Tyr Asp Ala Pro Phe Val Phe Ala Glu Val Asn Ala Asp
 385 390 395 400
 Val Val Asp Trp Ile Gln Gln Asp Asp Gly Ser Val His Lys Ser Ile
 405 410 415
 Asn Arg Ser Leu Ile Val Gly Leu Lys Ile Ser Thr Lys Ser Val Gly
 420 425 430
 Arg Asp Glu Arg Glu Asp Ile Thr His Thr Tyr Lys Tyr Pro Glu Gly

Pro Val Glu Ala Gly Glu Glu Val Lys Val Arg Met Asp Leu Val Pro
645 650 655

Leu His Met Gly Leu His Lys Leu Val Val Asn Phe Glu Ser Asp Lys
660 665 670

Leu Lys Ala Val Lys Gly Phe Arg Asn Val Ile Ile Gly Pro Ala
675 680 685

<210> 11

<211> 1470

<212> DNA

<213> Homo sapiens

<400> 11

gacggtcacc cgttgccagc tctagccttt aaattcccgg ctcggggacc tccacgcacc 60
gcggtctagcg ccgacaacca gctagcgtgc aaggcgccgc ggctcagcgc gtaccggcgg 120
gtttcgaaac cgcagtcctc cggcgacccc gaactccgct ccggagcctc agccccctgg 180
aaagtgatcc cggcatcgga gagccaagat gccggcccac ttgctgcagg acgatatctc 240
tagctcctat accaccacca ccaccattac agcgctcctc ccaggggtcc tgcagaatgg 300
aggagataag ttggagacga tgcccctcta cttggaagac gacattcgcc ctgatataaa 360
agatgatata tatgacccca cctacaagga taaggaaggc ccaagcccca aggttgaata 420
tgtctggaga aacatcatcc ttatgtctct gctacacttg ggagccctgt atgggatcac 480
tttgattcct acctgcaagt tctacacctg gctttggggg gtattctact attttgtcag 540
tgccctgggc ataacagcag gagctcatcg tctgtggagc caccgctctt acaaagctcg 600
gctgccccta cggtctcttc tgatcattgc caacacaatg gcattccaga atgatgtcta 660
tgaatgggct cgtgaccacc gtgcccacca caagttttca gaaacacatg ctgatcctca 720
taattcccga cgtggctttt tcttctctca cgtgggttgg ctgcttgtgc gcaaacaccc 780
agctgtcaaa gagaagggga gtacgctaga cttgtctgac ctagaagctg agaaactgg 840
gatgttccag aggaggtact acaaacctgg cttgctgatg atgtgcttca tcctgcccac 900
gcttgtgccc tgggtatttct ggggtgaaac ttttcaaaac agtgtgttcg ttgccacttt 960
cttgcgatat gctgtgggtg ttaatgccac ctggctgggtg aacagtgtcg cccacctctt 1020
cggatatcgt ccttatgaca agaacattag ccccgaggag aatatcctgg tttcacttgg 1080
agctgtgggt gagggcttcc acaactacca ccactccttt ccctatgact actctgccag 1140
tgagtaccgc tggcacatca acttcaacac attcttcatt gattggatgg ccgccctcgg 1200
tctgacctat gaccggaaga aagtctccaa ggccgccatc ttggccagga ttaaaagaac 1260
cggagatgga aactacaaga gtggctgagt ttgggggtccc tcaggttctt ttttcaaaaa 1320

ccagccaggc agaggtttta atgtctgttt attaactact gaataatgct accaggatgc 1380
 taaagatgat gatgttaacc cattccagta cagtattctt ttaaaattca aaagtattga 1440
 aagccaaaaa aaaaaaaaaa aaaaaaaaaa 1470

<210> 12

<211> 359

<212> PRT

<213> Homo sapiens

<400> 12

Met	Pro	Ala	His	Leu	Leu	Gln	Asp	Asp	Ile	Ser	Ser	Ser	Tyr	Thr	Thr
1				5					10					15	
Thr	Thr	Thr	Ile	Thr	Ala	Pro	Pro	Pro	Gly	Val	Leu	Gln	Asn	Gly	Gly
			20					25					30		
Asp	Lys	Leu	Glu	Thr	Met	Pro	Leu	Tyr	Leu	Glu	Asp	Asp	Ile	Arg	Pro
	35						40					45			
Asp	Ile	Lys	Asp	Asp	Ile	Tyr	Asp	Pro	Thr	Tyr	Lys	Asp	Lys	Glu	Gly
	50					55					60				
Pro	Ser	Pro	Lys	Val	Glu	Tyr	Val	Trp	Arg	Asn	Ile	Ile	Leu	Met	Ser
65				70					75					80	
Leu	Leu	His	Leu	Gly	Ala	Leu	Tyr	Gly	Ile	Thr	Leu	Ile	Pro	Thr	Cys
			85						90					95	
Lys	Phe	Tyr	Thr	Trp	Leu	Trp	Gly	Val	Phe	Tyr	Tyr	Phe	Val	Ser	Ala
	100							105					110		
Leu	Gly	Ile	Thr	Ala	Gly	Ala	His	Arg	Leu	Trp	Ser	His	Arg	Ser	Tyr
	115						120					125			
Lys	Ala	Arg	Leu	Pro	Leu	Arg	Leu	Phe	Leu	Ile	Ile	Ala	Asn	Thr	Met
	130					135					140				

Ala	Phe	Gln	Asn	Asp	Val	Tyr	Glu	Trp	Ala	Arg	Asp	His	Arg	Ala	His
145					150					155					160
His	Lys	Phe	Ser	Glu	Thr	His	Ala	Asp	Pro	His	Asn	Ser	Arg	Arg	Gly
				165					170						175
Phe	Phe	Phe	Ser	His	Val	Gly	Trp	Leu	Leu	Val	Arg	Lys	His	Pro	Ala
			180					185							190
Val	Lys	Glu	Lys	Gly	Ser	Thr	Leu	Asp	Leu	Ser	Asp	Leu	Glu	Ala	Glu
			195				200								205
Lys	Leu	Val	Met	Phe	Gln	Arg	Arg	Tyr	Tyr	Lys	Pro	Gly	Leu	Leu	Met
			210				215					220			
Met	Cys	Phe	Ile	Leu	Pro	Thr	Leu	Val	Pro	Trp	Tyr	Phe	Trp	Gly	Glu
225					230					235					240
Thr	Phe	Gln	Asn	Ser	Val	Phe	Val	Ala	Thr	Phe	Leu	Arg	Tyr	Ala	Val
				245						250					255
Val	Leu	Asn	Ala	Thr	Trp	Leu	Val	Asn	Ser	Ala	Ala	His	Leu	Phe	Gly
			260						265						270
Tyr	Arg	Pro	Tyr	Asp	Lys	Asn	Ile	Ser	Pro	Arg	Glu	Asn	Ile	Leu	Val
			275					280							285
Ser	Leu	Gly	Ala	Val	Gly	Glu	Gly	Phe	His	Asn	Tyr	His	His	Ser	Phe
			290					295							300
Pro	Tyr	Asp	Tyr	Ser	Ala	Ser	Glu	Tyr	Arg	Trp	His	Ile	Asn	Phe	Asn
305					310						315				320
Thr	Phe	Phe	Ile	Asp	Trp	Met	Ala	Ala	Leu	Gly	Leu	Thr	Tyr	Asp	Arg
				325						330					335
Lys	Lys	Val	Ser	Lys	Ala	Ala	Ile	Leu	Ala	Arg	Ile	Lys	Arg	Thr	Gly

Asp Gly Asn Tyr Lys Ser Gly

355

<210> 13

<211> 1637

<212> DNA

<213> Homo sapiens

<400> 13

```

gaggcgaacc ggagcgcggg gccgcggtcg ccccgaccag agccgggaga ccgcagcacc 60
cgcagccgcc cgcgagcgcg ccgaagacag cgcgcaggcg agagcgcgcg ggcggggggcg 120
cgcagggcct gcccgcctct tccgtcccca cccccctcgc ccttttctct tccccacctt 180
cctctcgctt cccgcgcccc cgcaccgggc gccaccctg tctctctctt gcgggagcgt 240
tgtccgtgtt ggcgcccgca gcgggcccgg cgggtccggc gggccggggg atggcgctgc 300
tggacctggc cttggaggga atggccgtct tcgggttcgt cctcttcttg gtgctgtggc 360
tgatgcattt catggctatc atctacaccc gattacacct caacaagaag gcaactgaca 420
aacagcctta tagcaagctc ccagggtgtc ctcttctgaa accactgaaa ggggtagatc 480
ctaacttaat caacaacctg gaaacattct ttgaattgga ttatcccaaa tatgaagtgc 540
tccttttgtt acaagatcat gatgatccag ccattgatgt atgtaagaag cttcttggaa 600
aatatccaaa tgttgatgct agattgttta taggtggtaa aaaagttggc attaatccta 660
aaattaataa tttaatgcca ggatatgaag ttgcaaagta tgatcttata tggatttgtg 720
atagtggaat aagagtaatt ccagatacgc ttactgacat ggtgaatcaa atgacagaaa 780
aagtaggctt gggtcacggg ctgccttacg tagcagacag acagggtctt gctgccacct 840
tagagcaggc atattttgga acttcacatc caagatacta tatctctgcc aatgtaactg 900
gtttcaaatg tgtgacagga atgtcttgtt taatgagaaa agatgtgttg gatcaagcag 960
gaggacttat agcttttgct cagtacattg ccgaagatta ctttatggcc aaagcgatag 1020
ctgaccgagg ttggagggtt gcaatgtcca ctcaagttgc aatgcaaaac tctggctcat 1080
attcaatttc tcagtttcaa tccagaatga tcagggtggc caaactacga attaacatgc 1140
ttcttgctac aataatttgt gagccaattt cagaatgctt tggtgccagt ttaattattg 1200
gatgggcagc ccaccatgtg ttcagatggg atattatggg atttttcatg tgtcattgcc 1260
tggcatgggt tatatttgac tacattcaac tcagggtgtg ccagggtggc aactgtgtt 1320
tttcaaaact tgattatgca gtcgcctggt tcatccgca atccatgaca atatacat 1380
ttttgtctgc attatgggac ccaactataa gctggagaac tggctgctac agattacgct 1440
gtgggggtac agcagaggaa atcctagatg tataactaca gctttgtgac tgtatataaa 1500
ggaaaaaaga gaagtattat aaattatgtt tatataaatg cttttaaaaa tctaccttct 1560

```

gtagttttat cacatgtatg ttttggatc tgttctttaa tttatttttg catggcactt 1620
gcatctgtga aaaaaaa 1637

<210> 14

<211> 394

<212> PRT

<213> Homo sapiens

<400> 14

Met Ala Leu Leu Asp Leu Ala Leu Glu Gly Met Ala Val Phe Gly Phe
1 5 10 15

Val Leu Phe Leu Val Leu Trp Leu Met His Phe Met Ala Ile Ile Tyr
20 25 30

Thr Arg Leu His Leu Asn Lys Lys Ala Thr Asp Lys Gln Pro Tyr Ser
35 40 45

Lys Leu Pro Gly Val Ser Leu Leu Lys Pro Leu Lys Gly Val Asp Pro
50 55 60

Asn Leu Ile Asn Asn Leu Glu Thr Phe Phe Glu Leu Asp Tyr Pro Lys
65 70 75 80

Tyr Glu Val Leu Leu Cys Val Gln Asp His Asp Asp Pro Ala Ile Asp
85 90 95

Val Cys Lys Lys Leu Leu Gly Lys Tyr Pro Asn Val Asp Ala Arg Leu
100 105 110

Phe Ile Gly Gly Lys Lys Val Gly Ile Asn Pro Lys Ile Asn Asn Leu
115 120 125

Met Pro Gly Tyr Glu Val Ala Lys Tyr Asp Leu Ile Trp Ile Cys Asp
130 135 140

Ser Gly Ile Arg Val Ile Pro Asp Thr Leu Thr Asp Met Val Asn Gln			
145	150	155	160
Met Thr Glu Lys Val Gly Leu Val His Gly Leu Pro Tyr Val Ala Asp			
	165	170	175
Arg Gln Gly Phe Ala Ala Thr Leu Glu Gln Val Tyr Phe Gly Thr Ser			
	180	185	190
His Pro Arg Tyr Tyr Ile Ser Ala Asn Val Thr Gly Phe Lys Cys Val			
	195	200	205
Thr Gly Met Ser Cys Leu Met Arg Lys Asp Val Leu Asp Gln Ala Gly			
	210	215	220
Gly Leu Ile Ala Phe Ala Gln Tyr Ile Ala Glu Asp Tyr Phe Met Ala			
	225	230	235
Lys Ala Ile Ala Asp Arg Gly Trp Arg Phe Ala Met Ser Thr Gln Val			
	245	250	255
Ala Met Gln Asn Ser Gly Ser Tyr Ser Ile Ser Gln Phe Gln Ser Arg			
	260	265	270
Met Ile Arg Trp Thr Lys Leu Arg Ile Asn Met Leu Pro Ala Thr Ile			
	275	280	285
Ile Cys Glu Pro Ile Ser Glu Cys Phe Val Ala Ser Leu Ile Ile Gly			
	290	295	300
Trp Ala Ala His His Val Phe Arg Trp Asp Ile Met Val Phe Phe Met			
	305	310	315
Cys His Cys Leu Ala Trp Phe Ile Phe Asp Tyr Ile Gln Leu Arg Gly			
	325	330	335
Val Gln Gly Gly Thr Leu Cys Phe Ser Lys Leu Asp Tyr Ala Val Ala			
	340	345	350

protein = 499600

Trp Phe Ile Arg Glu Ser Met Thr Ile Tyr Ile Phe Leu Ser Ala Leu
355 360 365

Trp Asp Pro Thr Ile Ser Trp Arg Thr Gly Arg Tyr Arg Leu Arg Cys
370 375 380

Gly Gly Thr Ala Glu Glu Ile Leu Asp Val
385 390

<210> 15

<211> 63

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 15

ggccagtgaa ttgtaatacg actcactata gggaggcggt tttttttttt tttttttttt

60

ttt

63

<210> 16

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 16

gtcgtcaaga tgctaccgtt cagga

25

<210> 17

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 17

ggggacaagt ttgtacaaaa aagcaggcta tgccgatggt catcgtaaac a
51

<210> 18

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 18

ggggaccact ttgtacaaga aagctggggt taggcgaagg tggagttggt
50

<210> 19

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 19

aaggattcgg gaatgggctg tcagaccaga ct
32

<210> 20

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 20

ttaaagctttc atcttttctt tttctgttgc c
31